SECRET

26 AUGUST 1958

MEMORANDUM FOR : CHIEF, TSS/APD

THROUGH : AC/TSS/TA

AC/TSS/R & D

SUBJECT : OPERATIONAL EVALUATION OF 35MM TIME LAPSE CAMERA

REFERENCE : MEMO TO C/TSS/PSD FROM C/TSS/APD/OB, DATED 19 JUNE 1958, SUBJECT: "TRANSFER OF ONE (1) COMPLETE 35MM TIME LAPSE CAMERA."

1. THE PROTOTYPE MODEL OF THE 35MM TIME LAPSE CAMERA SUBMITTED TO THIS OFFICE FOR TEST AND EVALUATION HAS BEEN EXAMINED AND TEST OPERATED.

2. TEST OBJECTIVES: THE PURPOSE OF OUR TESTS WAS TO GAIN SUFFICIENT KNOWLEDGE OF THE SYSTEM TO DETERMINE THE FOLLOWING FROM A PHOTOGRAPHIC STANDPOINT:

I. OPERATIONAL POTENTIAL

II. ADVANTAGES OVER EXISTING EQUIPMENT

III. EASE OF OPERATION

IV. ADEQUACY OF INSTRUCTIONS

AFTER THE COMPLETION OF OUR TESTS, THE CAMERA WAS DELIVERED TO TSS/ED WITH THE REQUEST THAT THEY TEST AND EVALUATE THE SYSTEM FROM AN ENGINEERING POINT OF VIEW. 25X1

3. TEST PROCEDURE: TESTS WERE CARRIED OUT BY TWO MEMBERS OF TSS/PSD, [redacted] AND [redacted] 25X1
BOTH MEN ARE EXPERIENCED IN HANDLING SPECIAL PHOTOGRAPHIC EQUIPMENT AND HAVE SERVED AS OPERATIONAL PHOTOGRAPHERS IN THE FIELD. THE CAMERA SYSTEM AND ITS OPERATION WAS DEMONSTRATED TO [redacted] THE PROJECT ENGINEER OF TSS/APD. 25X1

THE HANDBOOK SUPPLIED/

C-2249

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THE HANDBOOK SUPPLIED WAS STUDIED BEFORE OPERATING THE EQUIPMENT AND RECOMMENDED PROCEDURES WERE FOLLOWED. ALL THE COMPONENTS WERE EXAMINED AND TEST OPERATED INDIVIDUALLY (WHERE POSSIBLE), AND AS PART OF THE COMPLETE SYSTEM.

4. PURPOSE OF DEVICE: THIS SYSTEM IS AN ATTEMPT TO ANSWER A LONG-STANDING NEED FOR A SILENT, RELIABLE, BATTERY OPERATED 35MM TIME-SEQUENCE CAMERA.

5. TEST RESULTS:

A. LENSES: THE LENSES SUPPLIED ARE OF GOOD QUALITY. HOWEVER, THE BAYONET TYPE EYEMO MOUNT PRESENTS SEVERAL PROBLEMS. THE LENS MOUNT LOCKING SCREW, EVEN AFTER MODIFICATION, IS STILL SOMEWHAT AWKWARD TO USE. THE TWO (2) INCH LENS WOBBLES WITHIN THE MOUNT. THERE ARE VERY FEW EYEMO MOUNT LENSES PRESENTLY IN USE THROUGHOUT THE AGENCY. THE INCORPORATION OF THROUGH-THE-LENS FOCUSING IS A VERY DESIRABLE FEATURE. THE BORESIGHT ARRANGEMENT FURNISHED, HOWEVER, IS VERY DIFFICULT AND TIME-CONSUMING TO USE. THE FILM MAGAZINE MUST BE REMOVED AND A COIN USED TO DEPRESS A SMALL METAL BUTTON WHILE FOCUSING. WHEN USING THE LONGER FOCAL LENGTH LENSES, CONSIDERABLE CARE IS NEEDED WHEN REPLACING THE MAGAZINE AFTER FOCUSING TO PREVENT CHANGING THE FIELD OF VIEW BY INADVERTENTLY MOVING THE CAMERA. THE SPECIAL MOUNT FOR THE LONGER FOCAL LENGTH LENSES IS EXCELLENT, BUT THE ARRANGEMENT OF THE MOUNTING SCREWS PREVENTS THE CAMERA FROM LYING FLAT WHEN NOT MOUNTED ON A TRIPOD. SOME OF THE SCREWS ON THE LENS MOUNT SYSTEM WERE RUSTY WHEN THE UNIT WAS DELIVERED TO US.

B. THE CAMERA BODY: THE AUTOMATIC EXPOSURE CONTROL ACHIEVED BY VARYING THE SHUTTER SPEEDS IS A VERY UNIQUE DEVICE. THE INTERCHANGEABILITY OF LENSES AFFORDED BY THIS METHOD OF OPERATION IS A VERY DESIRABLE FEATURE IN THIS TYPE OF EQUIPMENT. ALTHOUGH THE MECHANISM EMPLOYED FUNCTIONED RATHER ERRATICALLY AT TIMES (AT BOTH ENDS OF THE SCALE), THE PRINCIPLE INVOLVED SEEMS SOUND. ONE HAD THE IMPRESSION THAT THE MOTOR USED TO CHANGE SPEEDS WAS SIMPLY NOT STRONG ENOUGH TO PERFORM ITS FUNCTION. THIS MAY ALSO HAVE BEEN RESPONSIBLE FOR THE FACT THAT THE UNIT DOES NOT TURN ITSELF OFF WHEN THERE IS INSUFFICIENT LIGHT TO MAKE A PROPER EXPOSURE. THE INCORPORATION OF AN AUTOMATIC SHUTTER SPEED CUT-OFF SWITCH IS VALUABLE AND SHOULD BE MAINTAINED.

TWO FEATURES OF THE/

TWO FEATURES OF THE SWITCH, HOWEVER, CAUSED CONCERN. THE STYLE OF THE SWITCH (TOGGLE) IS SUCH THAT ITS POSITION WAS INADVERTENTLY CHANGED SEVERAL TIMES WHILE WORKING WITH THE CAMERA. IT IS FELT ALSO THAT THE CHOICE OF SHUTTER SPEEDS PROVIDED (1/100TH SECOND FOR MOVING TARGETS AND 1/50TH SECOND FOR STILL SUBJECTS) IS OF LITTLE PRACTICAL VALUE. THE VARIETY OF INTERVALS BETWEEN EXPOSURES PROVIDED IS MORE THAN ADEQUATE. IN ITS PRESENT FORM, WE CAN FORESEE LITTLE USE FOR THE "BURST" FEATURE WHICH PROVIDES FOUR TO SIX EXPOSURES AT ONE SECOND INTERVALS. THE AMOUNT OF NOISE PRODUCED BY THE UNIT WHILE OPERATING WAS VERY DISAPPOINTING SINCE QUIET OPERATION WAS ONE OF THE MAIN OBJECTIVES IN CONSTRUCTING THE EQUIPMENT.

C. THE FILM MAGAZINES: THE TAKE-UP MECHANISM IN THE 100' MAGAZINE SUPPLIED WILL NOT FUNCTION WITH A 100' ROLL OF FILM NORMALLY CARRIED IN AGENCY STOCK. EXAMINATION OF THE MAGAZINE AND THE INSTRUCTIONS REVEALED THAT NO SHOULDER WAS PROVIDED ON THE TAKE-UP SHAFT FOR STANDARD 100' SPOOL FLANGES. FOR THE PURPOSES OF OUR TESTS THIS WAS REMEDIED BY INSERTING A SMALL WASHER ONTO THE SHAFT BETWEEN THE MAGAZINE BODY AND THE FILM SPOOL. THE INSTRUCTION MANUAL STATES THAT THE 200' MAGAZINE MAY BE LOADED IN SUBDUED LIGHT. NO MENTION WAS MADE, HOWEVER, OF THE FACT THAT THE CARTRIDGE EMPLOYED MUST FIRST BE LOADED IN THE DARKROOM. IT IS FELT THAT THE 200' MAGAZINE WILL FIND USE AS A SPARE FOR THE 100' UNIT (THEY APPEAR IDENTICAL EXCEPT FOR THE CARTRIDGE AND THE TAKE-UP SHAFT), BUT WE WOULD PREFER TO STANDARDIZE ON FILM LENGTHS OF 100, 400 AND 1,000 FOOT LENGTHS. SINCE THE 400 AND 1,000 FOOT MAGAZINES REQUIRE DARKROOM LOADING, PROVISION SHOULD BE MADE TO SUPPLY SPARE MAGAZINES WHEREVER THESE SIZES ARE CALLED FOR. THE GENERAL DESIGN OF ALL THE MAGAZINES IS EXCELLENT.

D. THE POWER SUPPLY: TIME DID NOT PERMIT AN ENDURANCE TEST OF THE BATTERY SUPPLIED. WE HAVE HAD POOR EXPERIENCES WITH THE SILVER CELL BATTERIES PROVIDED WITH OTHER CAMERAS IN THE PAST. THE SILVER CELL MAY WELL BE SUPERIOR TO THE NICKEL CADMIUM BATTERY IN CERTAIN TECHNICAL RESPECTS, BUT FROM A PRACTICAL STANDPOINT, WE PREFER THE NICKEL CADMIUM.

SILVER CELLS MUST BE/

SILVER CELLS MUST BE KEPT IN AN UPRIGHT POSITION, THEY ARE DIFFICULT TO RECHARGE, AND ONCE ACTIVATED REQUIRE CONSTANT ATTENTION. THERE IS A NEED FOR A SIMPLE STATEMENT OR GRAPH IN THE INSTRUCTION MANUAL WHICH WILL TELL THE CAMERA OPERATOR HOW MUCH FILM HE CAN EXPECT TO EXPOSE ON A FULL BATTERY CHARGE. SIX, 12, 22.5 AND 24 VOLTS ARE UTILIZED IN THE SYSTEM. HOWEVER, THE INSTRUCTION MANUAL CAUTIONS THAT CARE MUST BE TAKEN SINCE ONLY THE 24 VOLT AND COMMON RETURN LEADS ARE FUSED. IF ALL THESE DIFFERENT VOLTAGES ARE REQUIRED (WE WOULD PREFER THEY WERE NOT) THEN PERHAPS ALL THE LEADS SHOULD BE FUSED TO ELIMINATE POSSIBLE DAMAGE TO THE SYSTEM.

E. RADIO SWITCH: SINCE THE RADIO TRANSMITTER WAS NOT DELIVERED WITH THE UNIT WE WERE UNABLE TO TEST THIS FEATURE OF OPERATION. IT IS OUR FEELING HOWEVER, THAT THE INCORPORATION OF A RADIO SWITCH AS AN INTEGRAL PART OF THE CAMERA SYSTEM HAS UNNECESSARILY ADDED TO THE COMPLEXITY, WEIGHT AND BULK OF THE DEVICE. AS PRESENTLY ENVISIONED, WE CAN FORESEE LITTLE USE FOR IT. THE RADIO CAN ONLY BE USED TO START OR STOP THE SEQUENCING CYCLE SINCE NEITHER TRUE "BURST" NOR "PULSE" OPERATION IS POSSIBLE. SIGNAL FEED-BACK IS NOT PROVIDED AND AS A RESULT, THE OPERATOR WILL NEVER REALLY BE SURE WHETHER THE CAMERA IS "ON" OR "OFF."

F. OPERATING INSTRUCTION MANUAL: THE MANUAL IS NOT AS WELL ORGANIZED OR AS SIMPLE AS IT COULD BE. STATEMENTS ARE NOT TIED IN SUFFICIENTLY WITH THE PHOTOGRAPHS PROVIDED.

6. SUMMARY OF FINDINGS:

A. OUR OVERALL IMPRESSION OF THE CAMERA IS VERY FAVORABLE. CONSIDERING ALL THE FUNCTIONS IT PERFORMS, THIS IS ONE OF THE MOST COMPACT UNITS WE HAVE SEEN. WE REALIZE THAT THE SYSTEM FURNISHED IS LITTLE MORE THAN A BREAD-BOARD MODEL AND THAT SOME OF THE IMPROVEMENTS LISTED HEREIN MAY HAVE BECOME EVIDENT TO THE CONTRACTOR AND PROJECT ENGINEER DURING ASSEMBLY.

B. THE FOLLOWING/

B. THE FOLLOWING COMMENTS ARE TIED IN TO THE TEST OBJECTIVES OUTLINED IN PARAGRAPH 2 ABOVE:

I. OPERATIONAL POTENTIAL: WITH MODIFICATION, THERE IS A PRESSING CURRENT AND FUTURE NEED FOR EQUIPMENT OF THIS TYPE. SOME OF ITS USES WOULD INCLUDE: 25X1

II. ADVANTAGES OVER EXISTING EQUIPMENT: THE CHIEF ADVANTAGES OF THIS SYSTEM OVER EXISTING EQUIPMENT ARE: 35MM FILM SIZE, AUTOMATIC EXPOSURE CONTROL, LARGE RANGE OF EXPOSURE INTERVALS AND INTERCHANGEABLE MAGAZINES. THESE FEATURES ARE PRESENTLY AVAILABLE INDIVIDUALLY BUT NOT COLLECTIVELY ON OTHER CAMERAS.

III. EASE OF OPERATION: AS STATED IN THE MEMORANDUM ACCOMPANYING THE DEVICE, TECHNICAL SKILL IS REQUIRED BY THE OPERATOR TO TAKE FULL ADVANTAGE OF THE SYSTEM. THERE ARE SOME SITUATIONS WHERE ADEQUATE TECHNICAL HELP WILL BE READILY AVAILABLE.

IN MANY INSTANCES,/

IN MANY INSTANCES, HOWEVER, TECHNICAL GUIDANCE WILL HAVE TO BE PROVIDED THIRD OR FORTH HAND. SOME OF THE POTENTIAL USERS OF THE SYSTEM CAN NEITHER READ NOR WRITE. FOR THESE REASONS, WE CONSIDER THE DEVICE, IN ITS PRESENT FORM, TOO COMPLICATED FOR GENERAL USE.

IV. ADEQUACY OF INSTRUCTIONS: WE FOUND THE INSTRUCTION MANUAL VERY DIFFICULT TO FOLLOW. THERE IS NO ORDERLY PROGRESSION, I.E. DESCRIPTION, ASSEMBLY, OPERATION, TROUBLE SHOOTING ETC.

7. RECOMMENDATIONS: THIS PROJECT WAS UNDERTAKEN SOME TWO AND ONE-HALF YEARS AGO. SINCE THAT TIME OTHER PIECES OF RELATED EQUIPMENT HAVE COME ALONG WHICH HAVE SHIFTED EMPHASIS FROM TIME-SEQUENCE TO PULSE OPERATED CAMERAS. DEVICES SUCH AS THE RS-1 RADIO SWITCH, AND THE OPTICAL TRIGGER HAVE EMPHASIZED THE NEED FOR A RELIABLE, SIMPLE AND VERSATILE PULSE OPERATED CAMERA. THE EMPLOYMENT OF GEARED-DOWN BATTERY OPERATED TIMING MOTORS IN SMALL SEPARATE PACKAGES WHICH CLOSE A SWITCH AT PREDETERMINED INTERVALS NOW PERMITS ANY PULSE OPERATED CAMERA TO BE USED FOR TIME-SEQUENCE WORK. BECAUSE OF THIS, OUR CONCEPT OF THE MOST DESIRABLE CAMERA SYSTEM FOR THIS TYPE OF WORK IS ONE WHICH IS MADE UP OF A SERIES OF COMPONENT PARTS WHICH CAN BE CONNECTED TOGETHER IN VARIOUS COMBINATIONS TO FIT THE SPECIFIC REQUIREMENTS OF THE OPERATION. IN OTHER WORDS, A "BUILDING BLOCK" FAMILY OF DEVICES RATHER THAN A SINGLE UNIT WHICH TRIES TO EMBODY SO MANY FEATURES THAT IT MUST OF NECESSITY TURN OUT TO BE A GREAT COMPROMISE. WITH THIS GOAL IN MIND, THE FOLLOWING RECOMMENDATIONS ARE OFFERED. WE REALIZE SOME OF THE POINTS MAY TURN OUT TO BE IMPRACTICAL FROM AN ENGINEERING STANDPOINT AND WELCOME YOUR DISCUSSION OF POSSIBLE COMPROMISES.

A. LENSES: THE LENS MOUNT SHOULD BE THE LEICA THREAD TYPE. THE BORESIGHT SHOULD BE REPLACED BY A REFLEX HOUSING ARRANGEMENT FOR SIGHTING AND FOCUSING (AT LEAST ON THE LONGER FOCAL LENGTH LENSES). IF BUILDING ONE INTO THE CAMERA SHOULD PROVE TOO DIFFICULT, A COMMERCIAL UNIT MIGHT BE MODIFIED SO AS TO FIT THE CAMERA FOR USE WITH THE LONGER LENSES ONLY.

B. THE CAMERA BODY/

B. THE CAMERA BODY: THE INTERVAL TIMING MECHANISM SHOULD NOT BE INCORPORATED WITHIN THE CAMERA ITSELF. THE TIMER SHOULD BE HOUSED SEPARATELY AND DESIGNED SO THAT IT WILL ACTUATE A RELAY WHICH WHEN CONNECTED TO THE CAMERA WILL EFFECT EXPOSURES AT PREDETERMINED INTERVALS. THE CAMERA MUST BE MADE TO FUNCTION IMMEDIATELY ON COMMAND (BY CLOSING A SWITCH). THE SWITCH LEADS FOR THIS FUNCTION SHOULD BE PROVIDED WITH UNIVERSAL TYPE CONNECTOR TERMINALS ON THE CAMERA BODY. THE CHOICE OF SHUTTER SPEEDS PROVIDED BY THE AUTOMATIC CUT-OFF FEATURE SHOULD BE CHANGED TO 1/100TH SECOND FOR MOVING TARGETS AND 1/10TH SECOND FOR STATIONARY ONES. THE STYLE OF THE SWITCH ITSELF SHOULD BE CHANGED TO ONE WHICH IS LESS PROMINENT. THE "BURST" FEATURE SHOULD BE ALTERED SO AS TO PROVIDE A SERIES OF EXPOSURES ON COMMAND (FOR AS LONG AS THE COMMAND IS GIVEN). WE WOULD PREFER THAT THE NUMBER OF EXPOSURES POSSIBLE BE APPROXIMATELY EIGHT PER SECOND. HOWEVER, IF THE ENGINEERING PROBLEMS ENCOUNTERED ARE TOO GREAT, TWO EXPOSURES PER SECOND WOULD SUFFICE. THE AMOUNT OF NOISE TOLERABLE IN A CAMERA SYSTEM NATURALLY DEPENDS ON THE CONDITIONS UNDER WHICH IT IS TO BE USED. IN SOME FEW CASES THE NOISE PRODUCED BY THIS SYSTEM WOULD PROVE OF LITTLE CONSEQUENCE. IN MOST INSTANCES, HOWEVER, UNWITTING PERSONS WOULD BE CLOSE AT HAND (NEXT ROOM, OUTSIDE A VEHICLE ETC.). FOR THIS REASON WE WOULD LIKE TO SEE THE NOISE LEVEL OF THE PRESENT SYSTEM REDUCED. ALL OUTSIDE CONTROLS ON THE UNIT SHOULD INCORPORATE A "NON TAMPERING" FEATURE. THIS COULD TAKE THE FORM OF LOCKING MECHANISMS OR THE SIMPLE EXPEDIENT OF DESIGNING THE HANDLES, KNOBS ETC. SO THEY CAN BE REMOVED AFTER THEY HAVE BEEN PROPERLY SET. ALTHOUGH THIS FEATURE WOULD NOT ALWAYS BE UTILIZED IT WOULD PERMIT A TECHNICIAN TO SET MOST OF THE CONTROLS AT THE STATION WITHOUT FEAR OF THEIR BEING CHANGED INADVERTENTLY OR BY A WELL MEANING BUT POORLY TRAINED OPERATOR. AS A MATTER OF COURSE ALL MATERIALS USED IN CONSTRUCTING THE SYSTEM SHOULD BE CAPABLE OF RESISTING AT LEAST THE NORMAL RAVAGES OF THE ELEMENTS. IF DEEMED PRACTICAL, THE ASA RANGE OF SETTINGS SHOULD BE INCREASED FROM THE PRESENT 400 TO 3,200. EFFECTIVE FILM SPEEDS OF 1600 ARE ALREADY AVAILABLE AND IT IS REASONABLE TO ASSUME THAT EVEN FASTER FILMS WILL BE PRODUCED IN THE NOT TOO DISTANT FUTURE.

C. THE FILM MAGAZINES:/

C. THE FILM MAGAZINES: THE DESIGN OF THE 100' MAGAZINE SHOULD BE CHANGED TO PERMIT THE USE OF STANDARD COMMERCIALLY AVAILABLE FILM SPOOLS.

D. THE POWER SUPPLY: THE BATTERIES SUPPLIED MUST BE NICKEL CADMIUM. WE WOULD PREFER THAT THE POWER PACKS BE MADE UP IN SMALLER PACKAGES, PERHAPS IN INDIVIDUAL UNITS SUFFICIENT TO EXPOSE A 100' LENGTH OF FILM. A NUMBER OF THESE SMALLER BATTERIES MIGHT THEN BE CONNECTED FOR USE WITH THE LARGER MAGAZINES. IT IS FELT THIS WOULD EFFECT A CONSIDERABLE SAVING IN WEIGHT AND BULK ON MOST OPERATIONS. SOME SORT OF INDICATOR SHOULD BE BUILT INTO THE BATTERY CASE SO THAT THE CAMERA OPERATOR COULD CHECK BATTERY STRENGTH AT A GLANCE. PROVISION SHOULD ALSO BE MADE FOR THE USE OF POWER SUPPLIES OTHER THAN THOSE PROVIDED WITH THE UNIT (OTHER BATTERY PACKS AS WELL AS LINE VOLTAGE). IF AT ALL POSSIBLE ALL ELECTRICAL COMPONENTS OF THE SYSTEM SHOULD BE OF THE SAME VOLTAGE. THIS WOULD GREATLY REDUCE THE COMPLEXITY OF CONNECTORS REQUIRED WHEN USING OTHER POWER SUPPLIES OR ACCESSORY EQUIPMENT. A SIX OR 12 VOLT STANDARD IS PREFERRED BECAUSE OF THE READY AVAILABILITY OF AUTOMOBILE BATTERIES, BUT 24 VOLTS IS ALSO ACCEPTABLE.

E. THE RADIO SWITCH: WE WOULD PREFER THAT THIS FEATURE OF THE SYSTEM BE LEFT OUT COMPLETELY. FOR THOSE FEW INSTANCES WHERE A DEVICE OF THIS NATURE WILL BE CALLED FOR, OTHER SWITCHES ALREADY DEVELOPED (RADIO, CLOCKWORKS ETC.) COULD EASILY BE USED.

F. OPERATING INSTRUCTION MANUAL: THE MANUAL SHOULD BE REORGANIZED AND REWRITTEN WITH A VIEW TOWARDS SIMPLIFICATION. A PERSON OF AVERAGE INTELLIGENCE, WITH NO TECHNICAL BACKGROUND, SHOULD BE ABLE TO ASSEMBLE, OPERATE AND PERFORM FIRST ECHELON MAINTENANCE ON THE DEVICE WITH NO OTHER ASSISTANCE THAN THAT PROVIDED IN THE INSTRUCTIONS. ENTRIES IN THE TABLE OF CONTENTS SHOULD INDICATE THE PAGE ON WHICH THEY ARE LOCATED. DESCRIPTIONS OF FUNCTIONS OR PROCEDURES SHOULD BE TIED IN WITH PHOTOGRAPHS. THE BOOK SHOULD BE ORGANIZED INTO SECTIONS SUCH AS: DESCRIPTION; ASSEMBLY; OPERATION; FIRST, SECOND AND THIRD ECHELON MAINTENANCE; TROUBLE SHOOTING ETC. THESE SECTIONS SHOULD THEN BE BROKEN DOWN INTO STEPS I.E.

LOADING THE MAGAZINE:/

LOADING THE MAGAZINE:

A. PLACE THE MAGAZINE ON A FLAT SURFACE AND REMOVE THE COVER BY PRESSING DOWN ON THE COVER RELEASE LEVERS (FIGURE # 1 ITEM # 2) AND TWISTING THEM TO THE POSITION MARKED "O".

B. MOVE THE FILM GUIDE (FIGURE # 7 ITEM # 3) AWAY FROM THE FILM DRIVE SPROCKET (FIGURE #7 ITEM # 4) BY SLIDING IT TO THE REAR. ETC.

SPECIFIC NOMENCLATURE SHOULD BE ASSIGNED TO ALL COMPONENTS MENTIONED IN THE TEXT. THE NAME, ONCE ASSIGNED, SHOULD BE IDENTIFIED IN A PHOTOGRAPH OR DRAWING AND THE SAME NAME USED THROUGHOUT THE TEXT.

8. BECAUSE OF OUR LACK OF QUALIFICATIONS IN THE ENGINEERING FIELD, WE REALIZE THAT SOME OF THE SUGGESTIONS OFFERED MAY PROVE TO BE MECHANICALLY IMPRACTICAL. IT IS FOR THIS REASON THAT WE HAVE ASKED TSS/ED TO MAKE AN IMPARTIAL TEST AND EVALUATION OF THE SYSTEM. WHEN THESE TESTS ARE COMPLETED WE WOULD WELCOME THE OPPORTUNITY OF PARTICIPATING IN A ROUND-TABLE DISCUSSION WITH THE THREE DIVISIONS CONCERNED (TSS/APD, TSS/ED AND TSS/PSD) TO DECIDE JUST WHAT PRACTICAL STEPS CAN BE TAKEN TO IMPROVE THE SYSTEM. IT IS SUGGESTED THAT NO ADDITIONAL UNITS OF THE SYSTEM BE PRODUCED PENDING THE OUTCOME OF JOINT DISCUSSIONS.

APPROVED: [redacted]
C/TSS/PSD

[redacted] 25X1
DC/TSS/PSD 25X1

DISTRIBUTION:
ORIG & 1 - ADDRESSEE
1 - TSS/ED
1 - TSS/SRB
2 - TSS/PSD/FILES

TSS/PSD/[redacted] 25X1

CONFIDENTIAL

SECRET

~~SECRET~~

19 June 1958

MEMORANDUM TO : CHIEF, TSS/PHOTOGRAPHIC SUPPORT DIVISION

THROUGH : AC/TSS/R&D
AC/TSS/TA

SUBJECT : Transfer of One (1) Complete 35 mm Time Lapse Camera.

1. Attached hereto is a report on subject unit for your information and retention.

2. One unit complete with Operating Instructional Manual.
One (1) camera body
Four (4) magazines
Seven (7) lenses
Eighteen (18) filters
One (1) range finder
One (1) battery
One (1) basic cable
Three (3) extension cables
One (1) boresight

[redacted]
C/TSS/APD/OB

25X1

APPROVED:

[redacted]
C/TSS/APD

Attachment:
Report

Distribution:
Orig. & 1 - Addressee
1 - TSS/SRB
1 - AEH
2 - TSS/APD

TSS/APD/AEH:vs (19 June 58)

SECRET

Report on Equipment Submitted for Operational Evaluation

1. Name of Device: 35 mm Time Lapse Camera

2. APD Project Number, Contractor, and Contract Number: Project 125D, [redacted] R & D 113, Task 3. 25X1 25X1

3. Classification and Sterility: SECRET

4. Number of devices submitted for evaluation with this report: One (1) Prototype.

5. Additional numbers on hand: None

6. Future delivery: Five (5)

7. Additional procurement plans: Certain improvements to simplify design to increase reliability and lessen power drain on the battery will be incorporated in the additional five (5) units.

8. Requirement source and date: TSS/PSD, May 1956

9. Pertinent references: The unit originated in TSS/APD during the first months of 1956 and references are in the project folder P-125D on file in APD

10. General purpose of device: To operate unattended at a preset interval over a period of predetermined hours or days.

11. Unusual features and outstanding characteristics: The unusual feature of this unit is the Automatic Shutter Control. Another is range of time lapse settings. The intervals are: 1 second, 5 seconds, 10 seconds, 30 seconds and 60 seconds; 5 minutes, 10 minutes, 15 minutes, 20 minutes and 60 minutes.

    Seven (7) lenses: 1 inch, 2 inches, four inches, 6 inches, 12 inches, 18 inches and 24 inches.

    Four magazines: 100 feet, 200 feet, 400 feet and 1000 feet.

    Silver cell 24 volt battery

    40 amp hours

    Unit can be started manually or by radio frequency; sound waves or light waves.

12. Known limitations and shortcomings: The one (1) second interval will skip a frame occasionally.

    The boresight is too low in magnification. A new one of eight power with cross hairs and more efficient will be supplied for this unit.

12. (con't)

Reasonable professional and technical skill is required to operate the unit in order to make use of the full range of unit capabilities.

13. Status of operating instruction manual: Complete and one (1) copy supplied with prototype.

14. Status of service and maintenance manual including circuit diagrams: The circuit diagrams are included in the operating manual.

It is recommended that the camera be returned to manufacturer for servicing or repair.

15. Status of specifications and manufacturing drawings: At [redacted] 25X1
[redacted] 25X1

16. Report of technical tests and evaluations and where available: TSS/APD

17. Suggested operational tests: For security reasons the camera should be operated during the testing period [redacted] 25X1

18. In addition to the report on operational tests, comments are requested on the following specific features:

The number of focal lengths supplied,
The manufacturer of this family of lenses,
The range of A.S.A ratings,
The range of shutter speeds,
The range of time lapse settings,
The size and weight of battery,
The number of magazines supplied,
The range of filters supplied.

NOTE: A polaroid filter will be provided.

19. Project Engineer and contact in APD for additional information: [redacted] 25X1
[redacted] 25X1

20. Report on operational evaluation requested: As soon as possible.